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## The Danger from Mountain Reservoirs.

ON the very day when the city of Johnstown was annihilated and the prosperous Conemaugh Valley was transformed into a scene of desolation and death, which has never had a parallel in the history of the country, a dispatch was prepared in Washington for the Associated Press to the effect that Secretary Noble had approved of the plan for continuing the survey of the arid lands proposed by Major Powell, Director of the Geological Survey. This plan looks to the construction of a system of reservoirs in the mountain regions, where the waters are to be stored for use upon the dry plains below. The project contemplates operations of greater magnitude and importance than any which our hydraulic engineers have yet attempted, and many features of the proposed work demand more careful study than they seem to have received. The one point, however, which the Pennsylvania deluge forces upon our consideration is the threat of destruction which hangs over a valley when a vast amount of water is imprisoned above it. There are barriers which avail against the sweep of a tornado; no conflagration is so swift and fierce but that a hopeful fight can be organized to quell it; but there is absolutely no escape from a flood of water like that which raged through the Conemaugh Valley.

When we consider the thousands of square miles which it is proposed to irrigate, and estimate the vast amount of water that will be needed to give each acre as much as might fall elsewhere upon this space in a single summer shower, we can begin to understand what an enormous capacity these reservoirs must have to be of any practical benefit to agriculture. We are not prepared to deny that it is within the limit of engineering skill to construct dams that will not yield under the pressure of a given weight of water. But it is a fact that both in this country and in Europe the walls of reservoirs which have been pronounced safe by experts have opened to release torrents which have desolated a thousand homes. No one can tell what agencies of disintegration are at work in the foundations of such a structure. The engineer can measure the pressure of so many feet of water, and if he knows the quality of every solid yard of material in his embankment he can estimate its power of resistance when his work is finished. But he never can be sure that some chemical agent is not corroding an obscure portion of his masonry, or that some insignificant animal is not undermining it. The work of government contractors has not always proved the staunchest, and when we consider the difficulty of making any adequate inspection of such enormous dams as those proposed for the mountain gorges of the West, we must believe that there is no security for the lives or property of the people who would venture to make their homes below them.

What we have said applies to the conditions of ordinary times and average seasons, but besides this there is the constant menace of some unusual danger. It is the opinion of Major Powell, we believe, that all the forests should be cut away from the mountains where the great western rivers take their rise, so that the water will not soak into the ground, but run away on the surface to be caught by his dams. Another benefit to be derived from making the mountains bare would be, according to this theory, that the snows would all blow into the cañons, where they would remain and find their way to his reservoirs later. It is conceivable, however, that a warm rain or a warm wind through those gorges might deliver the melted snow with great rapidity. The Ardêche is a small mountain stream in France, and yet the sudden melting of the snows in the deep valleys at its sources so swelled its current that it once delivered 1,305,000,000 cubic yards of water into the Rhone in three days. For this short period it flowed with a volume like the Nile, and what reservoir could be trusted to restrain an outpouring of this sort? An earthquake so moderate that it would do no other damage might easily make a fissure in the dam of some storage reservoir which would admit enough water to open a passage for the sea that was crowding behind it. In short, there is danger always from large bodies of water held in by artificial construction, and the Congress of the United States should exercise the utmost caution in appropriating money to build such reservoirs of death.

Of course it is easier to persuade Congress that great public works like these dams will be more efficacious to restrain the waters of the mountains and deliver them when they are needed than is Nature's way of clothing the upper slopes of the river basins with forests. Where millions of money are to be spent in any gigantic scheme there will be hundreds of eloquent advocates to urge its necessity. But perhaps the ruin in the Conemaugh Valley may be allowed to offer one plea for the lives which will be put in daily peril if the project is not arrested. This is but one of the arguments against this scheme, and we are glad to learn that Mr. Fernow, Chief of the Forestry Department, is preparing a report for the Senate Committee on Irrigation, which will discuss the matter from other points of view. It is high time that some organized effort was made to check a movement which has been gathering force from the plausible statement of half-truths, until the government seems committed to the construction of enormously expensive works, which all experience has shown to be inadequate for the purpose they are intended to accomplish, and fraught with serious danger to the lives and property of thousands.

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M. Naudin has recently contributed to the *Revue des Sciences Naturelles Appliquées* an instructive paper upon the Australian Acacias, whose bark is valuable for tanning, and upon the advantages which may be expected from the general cultivation of these plants in Algeria. The three species which he considers the most valuable for Algeria are *Acacia pycnantha*, *A. decurrens* and *A. dealbata*.

The actual amount of tan-bark of good quality in California is not large. The Oak which supplies it (*Q. densiflora*) was never a very abundant tree, although widely and very generally scattered in some parts of the state, and the growth of the tanning industry on the Pacific Coast has

already made serious inroads upon the supply. The Hemlock is still fairly abundant in the immediate coast regions of Oregon and Washington; but the bark of the western Hemlock is inferior in quality of tannin to that furnished by the Tan-bark Oak of California or by these Australian Acacias. It is evident that sooner or later tan-bark will have to be produced in California from plantations specially made for the purpose. Australian trees are now known to flourish in the southern part of the State, where there are vast tracts of land suited to them; and these conclusions which M. Naudin reaches in the case of Algiers are equally applicable to southern California, where the climate resembles that of Australia as closely certainly as that of this last country resembles the Algerian climate.

"Algeria as a whole has the greatest climatic analogy with Australia—similar heat and similar droughts. Algeria, especially in the south, like Australia, possesses immense tracts of unoccupied land which can be made productive by the Acacia; and, like Australia, Algeria will be able through these trees to export tan-bark.

"The Acacias will produce, besides tan-bark, which is their principal product, valuable fuel, and possibly gums also as they do in Australia. Certain species, like *A. melanoxylon*, attain the size of forest-trees and produce timber. The wood of this interesting tree is exceedingly hard and richly-colored, and is much sought after by cabinet-makers. This species is already common in the parks and gardens of Provence, and springs up freely from self-sown seed in the garden of the Villa Thuret, as do many other Acacias; and I have not the least doubt that these trees can become naturalized on the other side of the Mediterranean more completely even than they can in southern France."

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## The Art of Gardening.—An Historical Sketch.
### VI.—Persia.

IT is a familiar fact that the Persians, who succeeded the Assyrians and Babylonians in the dominion of eastern Asia, were the most luxurious and pleasure-loving of ancient peoples. When conquest had brought them enormous wealth and unlimited power, their effeminate, self-indulgent habits were the scorn of the hardier, simpler Greeks; and the school-boy of to-day is taught the enormous significance of the result of those wars which left the intellectual Greek instead of the sensuous Persian to be the guide and leader of the world's development. But even in those earlier times, when the Persian had not lapsed into sloth and dissipation, we can divine his pleasure-loving temperament; and it nowhere expressed itself more strongly than in the creation of gardens. In the annals of Persia we find the first distinct record of something more extensive and varied than the small formal enclosure around temple, palace or private dwelling—something which is rightly called a park and seems to have been conceived, in part, at least, in the spirit of what we now call landscape-gardening.

The Persian park, in its first estate, was doubtless a hunting-preserve. Nowhere do we read of such persistent and enthusiastic sportsmen as the Medes and Persians. Hunting on horseback was the chief royal pastime, and the chief means of training noble youths in vigor of body, quickness of mind and familiarity with the saddle. In the "Cyropedia" Xenophon tells us that when the grandfather of Cyrus the Great was persuading him to remain in Media he said: "All the animals which are now in the park, I give them to you; and I will collect others of all kinds which you shall hunt as soon as you have learned how to ride." When the lad had once tasted the excitement of the chase in the open he exclaimed, "Boys, what children we seemed when we hunted in the park! It seemed as though we hunted animals tied by the leg, for . . . they were within a narrow compass of ground." But narrow in such a connection does not mean narrow as one would use the word with regard to a formal walled garden; and there is abundant evidence to prove that very large parks, containing wide expanses of plain, lay near the royal residences and were formed by Persian princes in distant parts of the empire. For example, when Xenophon in the "Anabasis" speaks of Celænæ, "a populous, large and rich city of Phrygia," he says "here Cyrus had a palace and an extensive park full of wild beasts, which he was accustomed to hunt on horseback whenever he wished to give himself and his horses exercise. Through the middle of this park flows the river Mæander. Its springs issue from the palace itself, and it runs also through the city of Celænæ. Here Cyrus held a review of the Greeks in the park, and took their number, and they were in all 11,000 heavy armed troops, and about 2,000 peltasts." This, indeed, in extent at least, was a park more than worthy of the modern name, which could not have been entirely devoted to the preservation of wild roving beasts; and if the Cyrus of the "Anabasis"—Cyrus the Younger, a prince and satrap, but not the sovereign of Persia—had such a pleasure-ground, and another equally famous at Sardis, it is not surprising to find that his greater namesake, a century and a half before, and all the kings who followed on the throne, were no less well provided. Cyrus the Great, we are told, after he had conquered the Asiatic world, managed to enjoy "a perpetual spring with regard to heat and cold" by spending seven months of the year at Babylon, three at Susa, and the hottest two at Ecbatana, in the wind-swept mountains of Media. The love for out-door life and natural beauty implied in such a statement might alone suffice to paint the Persian character in this respect. Nor even after death was Cyrus deprived of the free and verdurous environment he loved. He died at Pasargadæ, "and here," says Strabo, "Alexander saw his tomb in a park concealed within a thick plantation of trees." It remains to-day in a naked plain, and is a tower with a stepped platform and a closed upper room in which the body lay; and the contrast is great indeed between such a monument, set in such surroundings as it once possessed, and the dark, sealed caverns, hid in enormous pyramids or excavated in barren hill-sides, where the kings of Egypt were laid to rest. When Darius transferred the capital of Persia proper from Pasargadæ to Persepolis he created gardens that long were famous, though the nature of the site proves that they cannot have been very large, and were probably terraced constructions.

Nor did great parks exist only in the vicinity of the chief royal towns. In his Life of Artaxerxes Mnemon, brother of Cyrus the Younger, Plutarch tells us that, returning from an expedition against the Cadusians, the king "arrived at one of his own mansions which had beautiful ornamented parks in the midst of a region naked and without trees;" and he emphasizes in the succeeding words the respect and affection in which the Persians held such spots: "The weather being very cold, Artaxerxes gave full commission to his soldiers to provide themselves with wood" by cutting down any of the trees, "without exception, even the Pine and the Cypress; and when they hesitated and were for sparing them, being large and goodly trees, he, taking up an axe himself, felled the greatest and most beautiful of them." Moreover, in the "Economist" Xenophon makes Socrates relate that the younger brother, not content with what he had done at Celænæ and Sardis, "wheresoever he travels takes care that there may be gardens, such as are called *Paradeisoi*, stocked with everything good and valuable that the soil will produce; and in these gardens he himself spends the greatest part of his time whenever the season of the year does not prevent him."

Princes and kings were rivalled in their gardening enterprises by their wealthy subjects. Xenophon cites the gardens of Belesis, governor of Syria; and the famous satrap, Tissaphernes, must have had several, for Plutarch says* that, despite his hatred of the Greeks in general, he cherished such love and admiration for one among them that "the most beautiful of his parks . . . received by his direction the name of Alcibiades, and was always so called and so spoken of.' Could there, again, be more convincing proof of the exceptional affection that the Persians had for their pleasure-grounds?

The Persians' name for a garden was the word from which our "paradise"† has come; and it is but a just tribute to their national love for such places that it should have been adopted into every language, from Hebrew to English, and become the symbol of the highest delights which the body or the soul of man can enjoy. But the widespread effect of Persian taste upon matters of gardening art does not rest only upon the evidence of this universally borrowed word. Wherever their influence extended—and this means over the whole of western Asia and into Egypt and Ethiopia as well—they carried their love of gardens. The "Persian gallants" who destroyed the Babylonian monarchy, says Sir Thomas Browne in "The Gardens of Cyrus," maintained the "botanical bravery" of the hanging-gardens; and in later times a hunting-park lay near the palace which had been laid out, perhaps, by the great King. When Quintus Curtius, in his "Life of Alexander," tells of the

* "Life of Alcibiades.

† Literally, it means "enclosed."

king's expedition to Bazaria, a far-off district lying east of the Caspian Sea between Parthia and Bactriana, he says: "Of the barbaric splendor prevailing in these parts there are no stronger marks than the extensive forests in which are shut up untamed beasts of the grandest kinds. . . . In one park it was said the game had remained undisturbed through four generations." Our idea of the size of these parks is enhanced, furthermore, by the statement that Alexander entered one of them with his whole army when preparing for a lion-hunt. Pliny tells us that Cambyses planted trees in Egypt. Syria was long a Persian stronghold, and so, too, the whole of Asia Minor, and in both regions many gardens are named which seem to bespeak the fact. A royal paradise, for instance, that had been established by the conquerors at Sidon, was destroyed in an insurrection under Artaxerxes Ochus in the fourth century B. C. Of course by the time of Strabo and Diodorus the Greeks and Romans had supplanted the Persians in eastern Asia. But, as we shall see, the Greeks and Romans themselves had learned the luxury of gardens from the Persians. The same influence doubtless penetrated with the armies of Alexander and his various successors into the Indian peninsula. In mediæval times we find the favored land of Persia, under the rule of a new race and faith, still the centre of sumptuous living and its handmaid, gardening art. And, in short, a study of the early history of the art of gardening leaves us convinced that the Persians were much more potent than any other people in its development and extension.

*M. G. Van Rensselaer.*

New York.

## Recent Botanical Discoveries in China.—IV.

*Æsculus Chinensis* is a tree of altogether more slender proportions than *Æ. turbinata;* the relatively small flowers, the color of which I have not found described, are borne in long, narrow, dense panicles, and the small fruit is quite smooth. This species inhabits the mountains near Peking, and Maximowicz also reports it from the province of Shensi. This, doubtless, would be quite hardy in the southern and western parts, at least, of the British Islands, if not throughout, and in similar climates in the New World.

*Aucuba.*—Dr. Henry has sent specimens of a very singular variety of *A. Japonica*, very different from anything I have seen in cultivation. The peculiarity is in the shape of the leaves, which are from five to six inches long and exactly wedge-shaped, with a truncate, coarsely-toothed apex, the tooth formed by the excurvent midrib being two or three times as long as the others. The other teeth all result from excurvent veins, which are given at an angle of about 40°. In some of the specimens the apex is shallowly three-lobed, the central lobe, the smallest, being an acuminate prolongation of the midrib and a narrow portion of the blade, whilst the lateral lobes are rounded and four to six-toothed. Horticulturally this is more distinct than many of the species of botanists, though the difference is all in the shape of the leaves. A considerable series of specimens are all from the neighborhood of Ichang, where this shrub grows two to four feet high, according to notes accompanying the specimens. Among evergreens of known hardiness this is one of the most desirable in our recent Chinese collections.

*Buddleia.*—An investigation of the Chinese species of this genus has led to the discovery that the plant cultivated in European gardens under the name *B. curviflora* is not the species described and so named by Hooker and Arnott. The latter is a native of the Loo Choo Islands, and probably less hardy than the one passing under the same name, which inhabits Japan, and is apparently restricted to that country. Moreover, it is the only one common in Japan, hence I have named it *B. Japonica.* There is a very good figure of it in the *Illustration Horticole* (xvii., 1870, pp. 133, f. 25), showing the prominently four-winged branches which, with other characters, distinguish it from *B. curviflora*, Hooker and Arnott.

One of the first fruits of Fortune's journey to China on behalf of the Horticultural Society of London was *Buddleia Lindleyana* (*Botanical Register*, 1846, *t.* 4), which he met with on landing at Chusan in November, 1843. He obtained seeds and posted them on the first opportunity, and in the following March there were young plants growing in the Society's garden. This was regarded as a striking illustration of the rapid communication then existing between England and the far East. I have seen this in a living state on very few occasions—that is to say, in flower—but it is a beautiful plant, much more so than one would imagine from the figure. Dr. Henry collected an elegant variety of this species in the neighborhood of Ichang with sinuately-lobed, long, taper-pointed leaves.

The new species of Buddleia offer nothing strikingly ornamental, though one I have named *B. albiflora* is well worth a trial, and if hardy, or rather where it is hardy, it would, doubtless, prove attractive. It is a tree from twenty to thirty feet high, with papery, lanceolate leaves, from six to nine inches long, and small white flowers in long, narrow, dense, terminal panicles. It is from the Patung district, which, as already pointed out, has a considerable elevation, and where there is a long stretch of what Dr. Henry regards virgin forest. *B. variabilis*, another new shrubby species, is remarkable for the great diversity exhibited by its foliage, both in size and in the indumentum, as well as in the shape. Taking the extreme forms, one would not suppose them to belong to the same species, and in aspect there is indeed less resemblance between them than there is between them and *B. albiflora.* Thus one variety from Ichang has narrow, oblong, entire leaves, from one and a half to two and a half inches long, with a short whitish tomentum beneath. The other extreme is from the mountains of Szechuen at an elevation of 6,000 feet. In this the largest leaves are nearly a foot long and broad in proportion, with a coarsely crenate margin, and the two at each node are connected by large ear-like expansions from one petiole to the other. Intermediate forms of every grade are contained in the rich collections of Dr. Henry and the Rev. E. Faber. The flowers are described as pink outside and orange inside; and as they are produced in large pendulous panicles they must have a very pretty effect.

*Jasminum.*—Among the old Chinese Jessamines none is a greater favorite in England than *J. nudiflorum* (*Botanical Register*, 1846, *t.* 48), another of Fortune's numerous introductions. Against a wall it flowers freely with us in midwinter, when there is almost nothing else, and the showy yellow blossoms are set off by the green branchlets in the absence of leaves at this season. I have seen only cultivated specimens of this species from China although M. Franchet (*Plantæ Davidianæ*, i., p. 206) records it as common on both slopes of the Tsewglin range of mountains in the northern province of Shensi.

There are several new species, the most interesting among them being *J. Sinense* and *J. serophyllum.* The former inhabits the provinces of Hupeh and Kwangtung, and would almost certainly require the protection of a green-house except in the very mildest parts of the United Kingdom. It has rather large, softly hairy, trifoliolate leaves and terminal clusters of long, narrow, white flowers; and, judging from dried specimens only, it must be a very ornamental plant. *J. serophyllum* is from Mount Omei, in the province of Szechuen, at an elevation of 5,000 feet. This likewise has trifoliolate leaves, and in aspect strongly resembles the Indian *J. caudatum* (*Botanical Register*, 1842, *t.* 26), but the somewhat smaller flowers are described as yellow. *J. pachyphyllum* is a new species from the island of Lantao, below Canton, and is allied to *J. paniculatum*, of which there is a very poor representation in the *Botanical Register* (ix., 1823, *t.* 690), but the new species has very thick, almost orbicular, leaflets.

*Diospyros.*—Dr. Henry sends numerous specimens of the important *D. Kaki* from the province of Hupeh, and as he does not state the contrary, I assume that they were taken from wild trees. He calls it the oil, or varnish Persimmon, and mentions that an oil is obtained from the fruit and is used for waterproofing the common Chinese umbrellas and hats. There are four or five new species, none probably of any really ornamental character, though it is difficult to judge of this from dried material. *D. Sinensis*, from Mount Omei, at 4,000 feet, is apparently a shrub, with small leaves and slender branchlets, and a small apheroidal fruit about three-quarters of an inch in diameter.

*W. B. Hemsley.*

Kew.

## New or Little Known Plants.

### Syringa Japonica.

THE late W. S. Clark, the first President of the Massachusetts Agricultural College, in the autumn of 1876 sent to the Arnold Arboretum from Japan, where he had gone to organize an agricultural college at Sapporo, in the northern island, a small collection of seeds. Among them were seeds of a plant belonging to the *Oleaceæ*, and described as a small tree. A number of specimens were raised; these flowered for the first time four years ago, and proved to be the *Syringa Japonica* of Maximowicz, which had not, I believe, been introduced previously into cultivation. Our illustration upon page 293 represents the largest specimen of this tree growing in the Arboretum, and now about eighteen feet in height. That upon page

295 shows, on a much reduced scale, a flowering branch. The photograph from which this last illustration was taken was made in the Arboretum three years ago, and was reproduced at the time in the *Gardeners' Chronicle*. A figure of this species, made from dried specimens, was published also in the *Nouvelles Archives du Muséum*, second series, ii., *t.* 2, in connection with Decaisne's monograph of the genus Syringa.

*Syringa Japonica*, as it appears in the Arboretum, is a tree of remarkably rapid and vigorous growth. The trunk is straight, and shows no tendency to divide near the ground; it is covered with brown-red, smooth bark, which separates occasionally into thin scales, and is conspicuously marked, as is that of the branches, with raised, white, oblong dots. It might be easily mistaken, except for these dots, for the bark of a young Cherry-tree. The branches are upright and rather slender; those of the year being round and covered with light-brown bark. The winter buds are very small, rarely more than an eighth of an inch long, the broadly ovate scales ciliolate on the margins, tipped with a short, blunt point, and pale chestnut colored. The leaves are broadly ovate, contracted into a long, slender point, cuneate or sometimes rounded at the base. They are smooth on the upper and villous pubescent on the lower surface, dark green, thick and leathery, seven or eight inches long by three or three and a half inches wide, and borne on stout petioles an inch and a half or two inches long. The small white flowers, with short corolla-tubes, included in the calyx (like those of the other species belonging to the section *Ligustrina* of the genus), measure from a quarter to a third of an inch across. They are produced in immense compound panicles, eighteen to twenty-four inches long by sixteen or eighteen inches across, and appear here during the first week of July. The fruit is smooth, oblong and obtuse.

The hardiness and vigorous growth, the excellent habit, ample, dark green foliage and splendid inflorescence, appearing at a season when few trees bloom, make *Syringa Japonica* one of the most desirable of the small trees recently introduced into gardens. The fact that it loses its leaves early in the autumn, and that they fall while still green, is the only drawback which has yet been noticed in it here as an ornamental plant. *C. S. S.*

## Entomological.

### The Imported Elm-leaf Beetle

(*Galleruca xanthomelæna Schr.*).

EXPERIMENTS made during the season of 1888 at New Brunswick, New Jersey, by Rev. Geo. D. Hulst prove that this pest can be controlled by an expenditure of time and money, small in proportion to the result attained. The trees in Rutgers College Campus were effectually protected by spraying with a mixture of one pound of London Purple to one hundred gallons of water. In this proportion the larvæ are destroyed and the foliage is not injured. Some little difficulty is experienced in getting London Purple to adhere well to the leaves, and about three pounds of flour should be added to every fifty gallons of water, and thoroughly stirred. Better than this is the mixture of London Purple prepared by the Nixon Nozzle and Machine Company, of Dayton, Ohio, which I find by experiment adheres very firmly where brought into contact with the leaves. The underside of the leaves of the Elm, where the larva feeds, is covered with a rather dense velvety pubescence, which tends strongly to shed water, and consequently to prevent the proper distribution of the poison on the leaves. To remedy this about two quarts of kerosene emulsion should be added to it. This will give sufficient penetrating power to the mixture to spread it wherever it touches, and its effectiveness is thereby greatly increased. In my experience this spring I find quite a decided difference in the wetting power in favor of the mixture containing the kerosene. I should give the formula thus: Water, 100 gallons; London Purple, one pound; kerosene emulsion, one gallon. The kerosene emulsion may be made either with milk or soap, as is most convenient, in the proportion of two parts of kerosene to one of milk, or two parts of kerosene to one of soapsuds, made with half a pound of soap to the gallon of water.

The results of an application of this mixture are quickly noticeable. The young larvæ succumb almost immediately, and many of the eggs are destroyed where they are fairly hit by the mixture. Another point to be observed is the time of application. This should be just after the eggs are hatched and before the larvæ become half-grown. One application will then probably be sufficient, though the tree will be somewhat eaten by the imago. If the trees to be protected are small and few in number it will pay to spray twice—once when the beetles are beginning to oviposit, and again when the eggs are hatching. If sprayed too early a few beetles will be destroyed, which will be replaced by later arrivals, and little good is done. If sprayed too late the advanced larvæ will be ready for pupation, and will not be affected. Many a man has tried poisons to destroy insect pests, and declared them a failure; they were so not because of any fault of the poison, but simply because they were put on at the wrong time and in the wrong way. It is advisable to avoid wetting the trees more than necessary. The finer the spray, and consequent coating of poisonous moisture, the better the result.

The Elm-trees on Rutgers College Campus are probably as high as any trees that are ever sprayed, and to reach to the extreme tops of these I have the following apparatus: A Seneca Falls force-pump, mounted on a wheelbarrow-tank holding forty gallons, to which is attached a canvas-covered garden-hose fifty feet in length. The end of this hose is provided with a large-sized Nixon nozzle, and is lashed to a bamboo stick ten feet in length. With this I can reach twenty feet with the spray attachment from the ground; removing the spray attachment, I throw a small stream among the higher branches, which breaks into quite a fine spray at about twenty-five feet from the ground, and wets thoroughly a height of thirty feet. A light ladder about twenty feet long gives access to a position in the centre of the largest trees, whence the extreme tips may be reached. Few shade-trees are larger than the trees sprayed by me, and no more apparatus would ever be required. For the largest trees, over fifty feet in height, I use about twenty gallons of water, containing about one-fifth of a pound of London Purple, and a pint of kerosene emulsion, at a cost of seven cents, and the labor of applying the mixture. The result so far has been to destroy all the beetles and larvæ and most of the eggs, and has preserved fine-looking green trees, instead of skeletons with fragmentary patches of withered leaves.

Rutgers College. *John B. Smith.*

## Cultural Department.

### The Late Garden.

ONE who has secured by careful planning and good management an early garden, can also have a late one, by persistent care in carrying forward the work; and a late garden brings, in many respects, as much pleasure and profit as an early one.

Corn, Beans, Cauliflower, Tomatoes, Lettuce, Endive, Cucumbers, Peas, Beets, Turnips, Radish, Celery, Spinach can yet be planted in vacant places. July 1st is not too late in the latitude of Boston to plant Cory or Crosby Corn; but it is too late for large varieties, like the Evergreen. It is now too late to plant the pole Lima Bean; but the early bush varieties will mature before frost if planted before July. Black Wax (yellow pod), Early China (green pod) and Bush Horticultural (shell) Beans will all attain edible size before frost. Cauliflower, Kohl-Rabi, Brussels Sprouts, Kale, Red Savoy and White Cabbage plants set now will have abundant time to perfect their growths before autumn. Tomato-plants set now will set fruit for ripening before frost, or, at least, fruit which will ripen on the vines after they are pulled up and put under cover. Lettuce-seed planted now, and again on the 15th of July, and thinned where it stands, will make heads to weigh a pound; in the summer months it will not make good heads if transplanted. Endive sown now, and for succession, up to July 20th, can be both thinned and transplanted and will furnish a very acceptable salad from October to December. Cucumbers for pickles, or for the table, can be planted the last week in June or the first in July. Peas will not produce a full crop sown at this time of the year, but are worth trying for. The Turnip-beets, sown up to the middle of July, will make sweeter and more tender roots for the table than those sown in May, as they will grow more quickly and not so large. Turnips of the English varieties, as well as the summer and winter Radishes, can be sown up to August. Celery, if the plants are large, can be set during July; and Spinach can be sown up to September in rich land, where it succeeds best. The Viroflay

(Henderson) is the best all-purpose Spinach I have tried.

As fast as the early Peas, Beans, Corn, Radishes, Beets, Lettuce, Onions and Potatoes mature fill the spaces with later crops; this keeps the weeds down, the garden full, and the table well supplied at a time when the average garden is empty or over-run with weeds.

W. Springfield, Mass. *W. H. Bull.*

the growth of fine fruit. The nurserymen offer potted plants at such reasonable figures that it is a matter of small expense to renew a bed annually. The best plan is to have two beds continually; one planted in autumn and bearing its first small crop, and another with its best crop of the second year. The latter is to be plowed or spaded under as soon as the fruit is off, thus furnishing the best place for the crop of

Fig. 114.—Syringa Japonica in the Arnold Arboretum.—See page 291.

## Strawberries.

AS soon as the fruit is gathered clean out the Strawberry beds and cultivate thoroughly. If plants are wanted, a portion of the bed should be specially reserved for this purpose, but the fruiting-bed should be kept scrupulously clear from runners. In small gardens it seldom pays to raise plants, since this interferes with the neatness of the beds and winter Cabbages or Savoys. Then on some other vacant spot plant, about the first of September, another bed of Strawberries with strong, potted plants. In raising these potted plants I have abandoned the practice of layering the plants in pots buried along the rows. This is tedious and laborious, and interferes with weeding. Many of the pots, too, get buried and overlooked. My plan is to make the

soil perfectly clean and mellow between the rows where I want the plants. Runners are trained out and are induced to strike root as soon as possible. Then, as fast as they have made little roots half an inch to an inch long, they are lifted carefully and taken to the potting-shed at the greenhouse, where they can be potted in good soil and in a comfortable manner for the operator. I use three-inch pots, and as soon as potted the plants are set on a bed of coal-ashes in a frame, and shaded with screens made of laths nailed an inch apart, so as to give a varying shade and sunshine. Having them thus convenient for watering, they grow with great vigor, and soon make better plants than if the pots were left plunged in the garden to take the chances of rain or drought. Plants potted in this way in July, in a rich compost of rotted sods and manure, furnish the best material for setting a bed late in August or early in September, or in fact at any time when the ground is ready after the pots are filled with roots. By raising or buying a new set of potted plants in this way every year, one can always have, with good soil and culture, the finest fruit the variety selected is capable of yielding, and can avoid the nuisance of an old, worn-out, grassy Strawberry bed. These fall-planted Strawberries will give a moderate crop the following spring, and a full crop the second year, after which they should be destroyed. As to varieties, every one must experiment for himself, for no fruit varies so much with soil and local circumstances. But having a fruit that suits, it is folly to abandon it for some much-advertised novelty. Test promising novelties in a small way, but depend for fruit upon the sort that has done well in the past.

Crozet, Va. *W. F. Massey.*

## Lælia purpurata.

THIS magnificent Orchid has been known to cultivators more than forty years, and is certainly deserving of the title "King of the Orchids," which has been bestowed upon it, for it stands without a rival among its congeners on account of the size and beauty of its flowers. Unlike most other beautiful plants, *Lælia purpurata* is not rare, and poor, indeed, must be the collection which does not possess a specimen of it.

It has been stated in various works that this species was first discovered by M. Pays, of Bornhem, near Antwerp, hence the name of *Cattleya Brysiana*, under which it was formerly known in gardens and figured and described in books. Its real discovery, however, is attributed to François Devos, who found it growing in the province of Santa Catherina, in south Brazil, while traveling there in 1847. He sent plants to M. Verschaffelt, a nurseryman of Ghent, whence they were distributed over Europe. In England it flowered for the first time in the nurseries of Messrs. Backhouse, of York, who, at that time, were able to sell small plants of it for the sum of twenty-five guineas each. Now, however, it has become more plentiful, and good plants may be obtained at a very low figure.

The plants, which grow about two feet high, have spindle-shaped stems, which become furrrowed when old, each bearing a single large, leathery, strap-shaped leaf, of a deep shining green, and an erect peduncle, bearing from three to seven large and beautiful flowers, each six or seven inches across. The oblong-lanceolate-acute sepals, and the ovate-oblong wavy petals, are of a delicate white color, while the lip, which forms the great attraction of the flower, is slightly trilobed; the two basal lobes are folded over the column, forming a tube (white outside and yellow on the inside), which is traversed by conspicuous radiating lines of a deep crimson-purple. The large anterior lobe, which is crisped and spreading, is also of a very deep velvety crimson-purple, which passes into rose at the apex, and is covered with deeper purple veins. The flowers will remain in good condition for three or four weeks if the plants are placed in a moderately cool and dry atmosphere.

There are many varieties of this species known, all distinguished more or less by the difference in color. Among the most distinct varieties are Schrœderiana, with pure white sepals and petals, and a white border around the mauve-purple of the front lobe of the lip; Russelliana has the white sepals and petals tinged with rose, and a lilac-purple lip with deeper veins; while Williamsiana has the sepals and petals of a deeper rose color, and a very deep purple lip. Other varieties run so near to each other that it is impossible to distinguish them by sight only.

*Lælia purpurata* and its varieties thrive, when grown in a temperature of 60° to 65° Fahr., in a compost of good fibrous peat and sphagnum moss. The plants generally produce their flowers during May and June, and a short time after they are over the growing season begins. Any plants requiring it should then be re-potted, but they should be kept an inch or two higher than the rims of the pots, so that the roots may be able to creep over the surface of the soil. The plants should be placed in such a position that they may obtain plenty of light, as this will induce them to develop and ripen good strong bulbs, without which it is impossible to expect a good crop of flowers when the proper season arrives. When growing, the plants may be freely watered, and a syringing in the latter part of each day is also beneficial. The plants should be slightly shaded when the sun is exceptionally hot, otherwise the leaves would become brown and shrivelled. During the winter months the plants should be considered at rest, and consequently require very little water, and when in flower, the less water given the better.

St. Albans, May 1st, 1889. *John Weathers.*

**Papaver Caucasicum.**—This handsome perennial Poppy is flowering with us for the first time. It was received last year from southern Germany, and has proved to be quite hardy and worthy of cultivation. In general appearance the plant resembles a Meconopsis, the leaves being of a glaucous green and covered with hair-like prickles. The flower-stems are two to three feet high and branched from base to apex, each branch producing numerous flowers of a delicate salmon color, and measuring two inches across. *P. Caucasicum* is easily raised from seed, which is freely produced, and it usually flowers the second year from sowing.

**Alstromerias.**—These lovely Amaryllidaceous plants are too seldom met with in gardens, and the reason is not easily explained. There are at least two species that are perfectly hardy here in the Eastern States—namely, *A. Peruviana* and *A. aurantiaca*. These two we have grown for several years, and find them to do well and increase rapidly when planted in a warm, sheltered corner of the garden, near brick-work, or on a sloping bank, where there is no danger of moisture accumulating in winter. Alstromerias are gross feeders, and when planted need plenty of well-decayed manure worked in with the soil, the more so as their fasciculated masses of fleshy roots bear disturbance badly. Our plants have been in bloom several weeks, and will continue to produce their bright orange flowers on successional growths until frost stops them. Seeds are produced freely, and should be sown as soon as matured, otherwise they will remain dormant until the second year from sowing. As soon as the young plants are large enough to handle they should be potted, and in spring planted in their permanent beds. There are two other species said to be hardy, but these we have not tried.

Passaic, N. J. *O.*

**Sweet Peas.**—The secret of having these beautiful flowers during the whole season does not lie in successive plantings. The earlier the seed is in the ground after it is in fair working order the better, and later plantings will never succeed as well as the first. To insure continuous bloom it is only necessary to cut the flowers as they are fully formed. The tendency of the plant is to produce seed, and if this is prevented by plucking the flowers others will be thrown out quickly to supply the loss. If the cutting is neglected a crop of pods will be produced at once, and the flowering will very shortly come to an end. By this constant cutting of the flowers I have kept Sweet Peas in bloom until October. The plants should not be hoed after they begin to form flower-buds, but after the last hoeing it is good practice to mulch the ground with some coarse litter. This will keep the roots moist in dry weather and hold the small weeds in subjugation. It may be worth mentioning that I have grown Sweet Peas for seven successive years on the same spot, and do not observe any deterioration in their quality. Every year I plant a few in some other part of the garden, and the difference between the two lots, if there is any, is in favor of those grown in the old Sweet Pea corner.

Boston, Mass. *M. B. Faxon.*

**Dwarf Pears.**—It is commonly said that Dwarf Pears are so short-lived as to be unprofitable, but such is not of necessity the case. There are three requisites to longevity of Dwarf Pears and to success in their cultivation: (1) A perfect union with the Quince; (2) Systematic heading-in, in order that the top may not become too large and heavy for the root; (3) Good care always. Varieties which unite permanently with the Quince are comparatively few. Angoulême is undoubtedly the best, and Anjou is excellent. The best old Dwarf Pear orchard which I have ever seen is a ten-acre plot belonging to T. G. Yeomans and Sons, Walworth, Wayne County, New York. It was set in 1853, and notwithstanding its thirty-six years is still in prime of vigor. Two-thirds of the new wood is cut back every spring, and a fair-sized man can pick every pear on the trees without a ladder and without climbing into the trees. As I write the fruit has set profusely, and it has

already been thoroughly sprayed with London Purple. The orchard has always been a profitable one. The varieties are various, but the best are the Angoulêmes.

Cornell University. *L. H. Bailey.*

## Notes from the Arnold Arboretum.

THE Moonseed (*Menispermum Canadense*) is one of the most graceful of our native vines. The long, slender, twining stems and ample and abundant, delicately thin leaves, adapt this plant for covering small arbors and other structures or for clambering over trees and among shrubs. The flowers, which are white and borne in short axillary clusters, are not in themselves particularly conspicuous, and are quite hidden by the leaves, which conceal also the black grape-like fruit, which ripens in September. Menispermum is dicœcious, so that plants of the two sexes must be planted if fruit is expected.

The cosmopolitan *Viburnum Opulus*, the so-called Cranberry-tree, with its showy, neutral ray-flowers, which are now expanded, is one of the most beautiful of hardy shrubs of large growth, although now less commonly planted than the variety in which all the flowers are neutral—the "Snowball," or than its Japanese relative, *Viburnum plicatum*. The wild form of *V. Opulus* is not only more graceful and far more attractive than any of the abnormal forms of Viburnum, but it seems to escape the visits of plant-lice, which so disfigure the leaves of the "Snowball," and sometimes almost exterminate it. There are growing in the Arboretum, side by side, *Viburnum Opulus*, from our northern woods, the European plant, and others raised from seed gathered by Dr. Bretschneider on the mountains near Pekin. The last is a distinct and very ornamental plant, with striking, narrowly acuminate leaves, sharply wedge-shaped at the base, and often almost destitute

Fig. 115.—Syringa Japonica.—See page 291.

*M. Canadense* is a common plant in the central portions of the country east of the Mississippi River, where it is found growing in deep rich soil along the banks of streams and in other moist situations. There is a second species in this collection, *M. Dauricum*, a native of Siberia, Manchuria and northern China, whence it has been introduced into the Arboretum by Dr. Bretschneider. It may be distinguished from the North American species by its rather larger leaves, which are here quite glabrous on the lower surface, and more broadly and conspicuously lobed; by the larger flowers, which expand here nearly a week earlier, and by its larger fruit. It is a perfectly hardy plant, and grows easily and rapidly, but from a garden point of view it does not seem in any way superior to our native species. The name, Menispermum, is composed of two Greek words, meaning moon and seed, having reference to the laterally flattened stone of the fruit, which assumes the form of a crescent from the ovary being incurved in its growth after the flower has fallen.

of the broad lateral lobes usually found on those of this species. The cymes of flowers are rather broader than those on the American plant. There is in the collection a curious dwarf variety of *V. Opulus*, which has never been known to flower before here. It forms a perfectly compact little round bush a foot and a half high and more than two feet and a half across. The leaves, inflorescence and flowers are all smaller than those of the ordinary plant, from which it does not otherwise differ. The variety is not without interest as a curiosity, and it might, perhaps, find its place in a collection of dwarf shrubs. Its compact habit and stiff and formal outline, however, do not make it a desirable object when planted on the margins of shrubberies composed of more graceful plants, while the rarity of its flowers detracts also from its value as a garden plant. It should not be forgotten in comparing the Cranberry-tree with the "Snowballs," that the former is one of the most ornamental of all shrubs in fruit, which hangs bright and scarlet on the naked branches almost until the return of spring, while the

"Snowballs," which produce neutral flowers only, are destitute of fruit.

The Scotch or Burnet Rose (*Rosa pimpinellifolia*, or as it is still more generally known, *R. spinosissima*) is a plant which was more frequently seen in gardens a quarter of a century ago than it is to-day, being, like so many of the beautiful wild single Roses, discarded in favor of the showier-flowered races which have come into fashion in late years. The Scotch Rose, nevertheless, is one of the most charming of hardy plants, with numerous varieties, differing in the color and size of the flowers. *Rosa pimpinellifolia* in its uncultivated state is a small, erect, much-branched shrub, rarely growing more than a foot high, thickly armed with straight, slender prickles, intermixed with glandular hairs. The leaves are composed of seven to nine glabrous-toothed, broad leaflets. The flowers are white or pink, one-half to one inch across, solitary on the ends of the short branches, with smooth, globular calyxes. The fruit is globular, or nearly so, black, or rarely red. This plant has been cultivated in gardens for centuries, and formerly, when Roses were less common than they are in these days, a good deal of attention was devoted no doubt to the selection and improvement of varieties. There are several of these varieties in this collection, some with pure white, others with pink, and one with semi-double flowers. The Scotch Rose is absolutely hardy, and grows and flowers year after year without other care and attention than the early dose of whale-oil soap, which is necessary in this climate to preserve the foliage of every Rose, always excepting that of the Japanese *R. rugosa*, which is unpalatable, apparently, to all insects. *Rosa pimpinellifolia* is widely spread over Europe and temperate Asia, occupying shrubby wastes, often close to the sea, or heathy hills.

As they are now in flower, a few words may be said about two of the twining-stemmed Honeysuckles of the eastern States. They are *Lonicera flava* and *L. Sullivantii*. The first is one of the rarest plants of the United States flora, being known to have grown wild only on the top of Paris Mountain, in Greeneville, South Carolina. It was first made known by a notice published in 1802 in Dayton's "View of South Carolina." Later it was collected in the same locality by Fraser, who introduced it into English gardens, where it is still occasionally met with, it is said. It is very rarely seen in those of this country. It is a high-climbing, glabrous plant, with somewhat glaucous, thin leaves, which are broadly oval, the two or three upper pairs joined together into a disk. The flowers are borne in short, capitate, terminal clusters; they are slightly fragrant, bright yellow, later turning orange, with long, slender corolla-tubes, from half an inch to nearly an inch long, slightly hairy on the upper part of the interior surface. The plant, which has long been confounded with this beautiful species, and is now generally cultivated under the name of *L. flava*, is the much more common. *L. Sullivantii* (the *L. flava* of Gray's Manual), which was first distinguished in Ohio many years ago by Mr. W. S. Sullivant, and which is a widely-distributed plant from central Ohio to Winnipeg and to Tennessee. This plant may be distinguished from *L. flava* by its short, bushy stems, which barely climb or attain a greater height than six or eight feet; by the much thicker leaves, whitened with a glaucous bloom; by the inflorescence, which consists of several more or less approximate whorls of flowers, and by the flowers themselves, which have a short corolla-tube, less than half an inch long, conspicuously gibbous and very pale yellow. The leaves are two to four inches long, oval or obovate-oblong, those of the flowering-stems sessile, with the upper pair joined into an orbicular disk. The flowers of this species are not fragrant. This is the half-bushy Honeysuckle often seen in old gardens, with pale foliage, which becomes by midsummer quite mealy-white. It is a far less ornamental or desirable plant than the true *L. flava*, which some nurseryman would do well to take up and make common. Mr. Faxon, who has detected *L. Sullivantii* in the plant commonly cultivated, has made sketches of the two species, which will in time appear in the pages of Garden and Forest and illustrate the distinctive characters of the two plants, which are, moreover, clearly defined in Gray's "Synoptical Flora of North America."

The Scarlet Trumpet-Honeysuckle, a widely-distributed plant through the middle and southern States, and one of the most beautiful of the Honeysuckles in cultivation, is such a well-known plant that it need only be mentioned for the purpose of calling attention to a variety with clear yellow corollas, which is not as well known to cultivators, or as often seen in gardens as its great beauty entitles it to be.

*Lonicera hirsuta* is another of the climbing Honeysuckles of the eastern States, which is now in flower, and which well deserves a place in every collection of hardy shrubs. It is a high-climbing, free-twining plant, with oval, prominently-veined, softly-pubescent, green leaves (destitute of the whitish bloom found upon those of *L. flava* and *L. Sullivantii*), the upper pairs connate. The corollas are orange-yellow fading to brown, viscid-pubescent on the outer surface, the tubes half an inch long. The throat and the base of the filaments are covered with hairs. This pretty plant is found growing upon rocky banks from northern New England and Canada to the Saskatchawan, and southward to Michigan and Pennsylvania.

It is surprising that the English Woodbine (*Lonicera Periclymenum*) is not more generally grown in the gardens of this country. It is one of the most beautiful of all the climbing Honeysuckles—a perfectly hardy plant, and the delicious fragrance of the flowers is unequalled. The flowers are pale red externally with yellow throats, and are produced from the ends of the branches in closely sessile heads which are stalked above the upper pair of leaves, which are closely sessile, although not united. This is a widely-distributed plant from Scandinavia to the shores of the Mediterranean. The "Dutch Monthly" Honeysuckle is a variety of this plant, so named, it is said, because it originated in one of the Dutch nurseries. The flowers are rather darker colored than those of the species. These Honeysuckles flower quite continuously through the summer months, and there are no more charming plants to train over the porch or veranda of a dwelling-house, that the fragrance of their flowers may be enjoyed constantly.

*Lonicera orientalis* is in flower. It is a low, shrubby species of western Asia, extending from Asia Minor to Kashmir and the temperate Himalaya, where it sometimes attains the size of a small tree. Here it is a slender shrub, with membranaceous, pale green, ovate, pointed smooth leaves, rather prominently veined; small, pink flowers and conspicuous black fruit. This plant, from an ornamental point of view, has little to recommend it as compared with some of the fine forms of the Tartarian Honeysuckle, or with some of the recently introduced Bush Honeysuckles from western Asia.

Another Himalayan species, *Lonicera quinquelocularis*, closely allied to *L. Xylosteum* of Europe and Siberia, is certainly better worth a place in the garden. It is a hardy shrub, growing to a height of from five to ten feet, with pubescent branchlets, ovate, or broadly lanceolate leaves, which are hairy on the lower surface; and clustered, sessile, axillary flowers, with short-tubed, hairy, yellow corollas. This plant is an old inhabitant of the Arboretum, where it is perfectly hardy, and decidedly ornamental. It is widely distributed in the Himalayas, where it is common between 4,000 and 12,000 feet elevation.

*Elæagnus Canadensis* is still, in spite of some interesting introductions from western Asia, the most ornamental species of this genus, at least in foliage. It is a stoloniferous shrub, growing to a height of eight to ten feet, with unarmed branches, those of the year covered with ferraginous scales. The silvery-white, scurfy leaves are broadly or narrowly elliptical, one and a half to four inches long. The axillary tubular flowers are a third of an inch long, silvery on the outside and yellow within. They are deliciously fragrant, and are followed by abundant, globular, dry, mealy, edible fruit. It is a widely-distributed plant from northern Minnesota to the Saskatchawan and to Utah; it is abundant, and a characteristic feature of the vegetation of the upper Missouri valley, where it was discovered by Lewis & Clark during their transcontinental journey. *E. argentea* was introduced into English gardens as early as 1813, but is now not very often seen in cultivation. It is perfectly hardy, and the silvery whiteness of the foliage and the pleasant fragrance of the flowers make it an attractive garden-plant. *E. umbellata* is also in flower. It is a shrubby plant, three or four feet high, the gray branches covered with brown scurfy scales. The leaves are oblong lanceolate, silvery on the lower surface, bright green on the upper. The flowers are clustered, creamy-white, fragrant, and appear after the leaves are fully grown. Those on the Japanese plant turn brilliantly in the autumn. The fruit is succulent, ovoid or globose, one-third of an inch long. Another plant here (*E. parvifolia* of Wall. and of gardens) is evidently the Himalayan form of the species. This is a larger and stouter plant, growing into a broad bush ten or twelve feet high, with rather narrower pale green leaves, but not otherwise distinguished from the Japanese plant; it is less hardy, however, and suffers seriously sometimes during severe winters. *E. umbellata*, as now defined by botanists, is a widely-distributed plant from Japan (where it abounds in the northern islands, covering the sandy banks of streams, just as the American species does those in the northern

Rocky Mountains), through northern China to the Himalayas and Afghanistan.

The India form is an old inhabitant of gardens, and is not infrequently seen in those of the middle States.

June 4th. *J.*

## The Forest.

### Forest Interests in Pennsylvania.—I.

I HAVE been looking around in Pennsylvania for a few weeks examining the condition of the mountain woods, and calling on journalists and other leading citizens, with the object of stimulating interest in forestry subjects, and especially in the work of the State Forestry Association. As I was present at the inception of this organization, and encouraged its founders at that time by pointing out some of the difficulties they would encounter, I have always felt much interest in its work. It was established chiefly by the efforts of two or three earnest women, and its history illustrates very well the nature of some of the opportunities for service to the public welfare which have recently been opened to public-spirited women in our country.

During this visit to the principal towns of the state I had, as always, the cordial co-operation of journalists everywhere, and Governor Beaver gave me all possible assistance, as did also Mr. Edge, who is at the head of the State Department of Agriculture, the officers of the State College and Experiment Station and prominent men generally. The next annual meeting of the American Forestry Congress, of which Governor Beaver is President, is to be held in Philadelphia on the 16th, 17th and 18th days of October of this year, and the recent energetic action of the State Forestry Association will, doubtless, prepare the way for an interesting and useful session of the national body.

There is still a great deal of fine timber in some portions of the mountain forest-region of Pennsylvania. Most of the original growth was cut off many years ago; much of it for charcoal, and the various uses for wood connected with the manufacture of iron and the construction and operation of railroads, as well as for making lumber. The timber now standing is chiefly second growth. A great deal of it is very vigorous, growing rapidly and constantly increasing in value. I saw some wonderful groves of young White Pine. One in Centre County, to which I made an excursion with Professor Buckhout, of the State College, is one of the most beautiful and interesting tracts of young timber that I have ever seen. It is not extensive, but it is a piece of pure forest of White Pine, remarkably dense, and the trees are nearly uniform in size, except that some of the weaker ones are being dwarfed by overcrowding.

Professor Buckhout has begun some experiments in tree-planting, having set out about 3,500 small White Pines and Chestnuts, a few hundred of them on land belonging to the State College, near the Agricultural Experiment Station, but most of them on a small area from which the timber had been removed, up in the mountains, five or six miles from the college. His object is observation, experiment, comparison of results, as a means of increasing his own knowledge of tree-culture. There is, of course, no need of forest-planting in this part of the country, as the trees will come in themselves everywhere, if the ground is protected from fire and from pasturage. But there is need of tree-planting by farmers on small areas which are unsuited to other crops, and which are now mostly occupied by worthless trees, bushes or briers. Such nooks and corners are often nurseries and seeding-places for mischievous weeds, which stock the entire farm or neighborhood. They might as well be devoted to growing useful trees, and farmers need more knowledge than they now possess regarding the best kinds to plant. Professor Buckhout and some of the most intelligent farmers of Centre County believe that the Chestnut does not succeed on the limestone land of that region, though it grows well on the sandstone soil higher up in the mountains.

In nearly every part of the state there is much complaint of the failure and decay of small tracts of woodland. No matter how vigorous the trees may be in a large forest area, when farms are opened and much of the land is cleared, the trees in tracts which are left for timber soon begin to die at the top and to blow down. The most observant farmers believe that this results from the desiccating effect of the wind, which increases in force as more and more of the forest of the region is cut away. In many parts of the state it is noticeable that the remaining woodlands have very little underbrush. This indicates that when the larger trees mature and are removed the woods will come to an end. In many cases woodlands are destroyed by the encroachment of grass, which appropriates the nutriment in the soil which the trees require, so that they die of starvation. Of course, pasturing is always fatal to woodlands, though some farmers appear never to have observed this fact, or thought of the relation between cause and effect in their own experience in this matter.

Planting belts of White Pine or other suitable evergreen trees all around a tract of woodland might be some protection from the desiccating influence of the wind, but farmers say they do not know how the grass is to be kept out, especially after the process of thinning the woods is begun by the removal of some of the trees for use. If the farm woodlands continue to die out it may become more needful than it has been hitherto to consider the matter of planting trees. But it seems evident in such cases that the present generation of trees perishes by reason of the increasing dryness and impoverishment of the soil, and tree-planting would not remedy this unless we can find some kinds of trees which will live and thrive on dryer and poorer soil. Perhaps planting evergreens thickly among the trees might be useful in protecting the surface from desiccation and from light, and also by detaining the leaves for a mulch, which now mostly blow away from the woods which are nearly destitute of undergrowth. The best kinds of trees to plant are, in nearly all cases, those which are already growing well in similar soil and conditions in each region.

In the towns of the state and on the grounds about public buildings and private dwellings, as well as around old farmhouses, there are many thousands of trees which should at once be cut down, as they are mature, over-crowded, ugly, or for various reasons unsuited to the places they occupy. In most cases there are far too many of them, they having been planted much too thickly and never adequately thinned. This is true of the grounds around the Capitol at Harrisburg, and of those of the State College in Centre County. Many of the trees in the State-house grounds are misshapen, dwarfed and ugly, and are every year causing increased injury to better trees. At the State College nearly all the trees should be cut down. They are only valuable as an illustration of what ought not to be.

On one side of the principal walk leading up to the college from the main entrance to the grounds there is a close line of Norway Spruces, and on the other a row of White Maples. A more incongruous and unattractive arrangement I have scarcely ever seen. But nobody planned or intended it. It was not designed at all. As in so many similar cases, it simply happened so. There was a nursery there once, and some of the rows of young trees were removed, while others were, unfortunately, left to grow, and they have grown until now it is probable that nobody in the state would dare to cut them down. Yet they are intolerable as a feature of an important educational institution, established and conducted by the state, and which therefore represents the civilization of one of the most important and vital communities of our nation.

It would be an excellent thing to devote the next Arbor Day in this state to cutting down trees, and to begin the work on the grounds which belong to the state around the Capitol and the State College.

Snow Shoe, Pa., June 8th, 1889. *J. B. Harrison,* Cor. Sec. American Forestry Congress.

## Recent Publications.

*West American Oaks.* Illustrations of West American Oaks from drawings by the late Albert Kellogg, M.D., with text by Edward L. Greene.

Dr. Kellogg devoted the last years of his life to the preparation of a series of botanical drawings of the Oaks, Pines and other trees of California and the adjacent regions, which he intended to publish with detailed descriptions. He did not live, however, to see this important work completed, and some of his old friends and associates have now secured the publication of his excellent figures of the Oaks, in handsome style, with full descriptive and critical notes from the pen of Mr. Edward L. Greene, the necessary funds being provided through the liberality of Mr. James M. McDonald.

The Oaks of California are perhaps the most difficult of all our trees to rightly understand and properly characterize. Some of the species are widely distributed over regions of varied climate, and show marked and striking varieties in different individuals; others of more restricted range vary greatly, some individuals growing as large trees, or as low and humble shrubs within an area, a few miles in extent. Leaves with entire and with sharply-toothed margins appear sometimes upon the same branch, and it is impossible without opportunity for wide and long study in the fields to reach anything

like an exact idea of their specific characters. Such opportunities Mr. Greene has enjoyed, to a fuller extent than any one who has studied these trees; and the results of his investigations cannot fail to be of the greatest value to dendrologists. Without undertaking, at this time, to criticise his conclusions, for which sufficient material does not exist in any of the eastern herbaria we will, in referring such of our readers as are interested in the trees of California to the work itself, simply note the following changes which Mr. Greene proposes.

*Quercus Morehus*, a species so named by Dr. Kellogg, but referred by Engelmann to *Q. Wislezeni*, Mr. Greene maintains as a species related to this last, but differing from it in habit and in the size and outlines of the leaves. It has been suggested that this may be a natural hybrid between *Q. Wislezeni* and *Q. Kelloggii* (a deciduous-leaved species) but Mr. Greene finds it abundant at Berkeley, many miles from any known station of *Q. Kelloggii*. *Quercus Breweri*, of Engelmann, as Mr. Watson has already pointed out (*Proc. Am. Acad.* xxii., 477) must give way to the older name of *Q. Œrstediana*, of R. Brown Campst. *Quercus Gambellii*, of Nuttall, the south-eastern representative of our eastern White Oak, and considered by Engelmann as a variety of the Rocky Mountain *Q. undulata* is reinstated as a species, while *Q. grisea*, and *Q. oblongifolia* are considered, so far as concerns the New Mexican and Arizona plants, forms of *Q. undulata*; and a new species, *Q. Engelmanni* is proposed for the common evergreen White Oak, of southern California, heretofore considered identical with the New Mexican *Q. oblongifolia*. Another new species, *Quercus McDonaldi* is proposed for a small deciduous White Oak, found upon the Island of Santa Cruz with a var. *elegantula* from the borders of streams in the southern part of the state.

A new Scrub Oak, from the Peninsula of Lower California, discovered as late as last year, is described as *Q. turbinella*.

So little is known yet accurately about the trees of Western North America, their characters and life histories that we hail with delight all contributions toward a better knowledge of them. The most important of recent contributions of this nature, is certainly the work that is now before us.

## Periodical Literature.

The chief value of an article called "The Migrations of Plants," published in the last number of the *Edinburgh Review* is that it directs attention to four books which have a wide fame with professed students in natural history. These are De Candolle's "Origin of Cultivated Plants" (1884), Mehn's "Wanderings of Plants and Animals from the First Home" (1885), Wallace's "Island Life" (1880), and Sir Joseph Hooker's "Address on Geographical Distribution," printed in the reports of the fifty-third meeting of the British Association for the Advancement of Science, held at York in 1881. Of course, however, since the article is based upon such works as these and intelligently summarizes many of their theories and reproduces some of the more curious facts they give, it has an intrinsic interest of its own and will be found pleasant and instructive reading by those who have not the time to study the authorities which it follows at first hand. Perhaps only one passage needs to be quoted with a word of warning. When the author says that "Darwin thought that the varying forms of florists' flowers and garden vegetables must convince us that selection is everything, and the choice of the particular species to be operated upon is by comparison nothing," he surely exaggerates a little; and when he adds, "you can convert such common subjects as Pelargoniums and Potatoes, Turnips, Radishes and Carnations to every size, shape and color by a few years' breeding and selection," he makes a palpable misstatement. If he can show the gardener how to take such flowers as Carnations, Pelargoniums, Tulips and Narcissi out of those ranges of color, which the careful cultivation of centuries has been unable to break through; if he can teach us how to grow blue Tulips, Carnations or Pelargoniums, for example, or scarlet Narcissi, or yellow *Phlox Drummondii*, he will earn the respect of the horticultural world and make a name for himself which it will be impossible for him to hide even under the discreet anonymity so carefully preserved for its writers by the *Edinburgh Review*.

## Correspondence.

### West American Oaks.

To the Editor of Garden and Forest:

Sir.—The publication of the late Dr. Albert Kellogg's drawings of Pacific Coast Oaks in quarto form, with text by that most careful botanist, Edward L. Greene, of the State University, deserves, I think, some especial mention. The funds for the publication were furnished by Captain James M. McDonald a wealthy pioneer, one of the directors of the Overland Monthly Company, a director of the Art School and an ex-Supervisor of San Francisco. He is said to be furnishing funds for the publication of another monograph similar in character, to be devoted to the Californian Pines.

The monograph on the "West American Oaks" will attract the interest of all botanists, and I only wish to note here a few things about some of the men concerned in the work, chiefly about Dr. Kellogg. I first knew Dr. Albert Kellogg in 1878. when I became editor of the *Californian Horticulturist*. He was so child-like and so sincere a person that I came to have a great liking for him. In his own field he was a hard worker. He lived as one of the "Poor Scholars" of the Middle Ages, apart from the bread-and-butter struggle that went on about him. He gave up his profession many years before his death, and lived in poverty, devoting his entire time to botanical investigations. In 1853 he and six others founded the California Academy of Sciences, now so munificently endowed for original research by the gifts of Charles Crocker and James Lick. He left his drawings and papers on botany to his co-workers, Mr. W. G. W. Harford and Dr. W. P. Gibbons. I do not know how extensive his researches were, but I know something about his contributions to the early periodical literature of the Pacific Coast: All of the early publications, such as *Hutching's Magazine*, the *Hesperion* and the *Pioneer* contained short but constant notes on our native plants, usually accompanied by drawings. The old *California Farmer*, the *California Culturist*, the early issues of the *Rural Press* and the special editions of other San Francisco weeklies contained many articles of value from Dr. Kellogg's pen. For years he was the only botanical writer on the Pacific Coast. He could have prepared and illustrated a better California botany for children than any we are now likely to have, so simple and fresh was his style. Day after day, month after month, year after year, he was at work in the old Church building, where the struggling Academy of Sciences had its home. Mr. Harford, Dr. Behr, Dr. Gibbons, Dr. Kellogg and a few others were always there, except when in the woods and mountains. It was a wonderful and loving little group of friends and workers in the midst of a great city, as yet too much devoted to material things. The daily newspapers hardly mention the lives of such men, but they shape the future, nevertheless. Men of broader scientific training came to work with them and carry on their plans to a higher fulfillment. Men of wealth put money in their hands to use in researches "for the good of humanity." To my mind the "West American Oaks" is a monument of a single-hearted, brave old botanical pioneer, and of the friendship of a group of men, rich and poor, who loved and honored him.

San Francisco. *Charles Howard Shinn.*

### Magnolias Near Baltimore.

To the Editor of Garden and Forest:

Sir.—Professor Sargent's paper on Chinese Magnolias reminds me that perhaps one of the oldest and finest specimens of *Magnolia Soulangeana* in America stands on the grounds of "Hampton," the seat of the Ridgely family, near Baltimore. This tree branches within two or three feet from the ground, and spreads over a large area. Five years ago the stem below the branches measured nearly eight feet in circumference. The tree was planted by the late Samuel Feast, since well known as a florist, nearly sixty years ago, when he was the head gardener at Hampton, and his brother, the late John Feast, was his foreman. Of the same importation the Feasts planted at Hampton a Purple Beech, a Cedar of Lebanon and other rare trees. The Beech is worth a long journey to see. It stands on a smooth lawn unencumbered by other trees, and its branches sweep the ground in a circle fully fifty feet in diameter, while its symmetrical head rises like a copper dome over fifty feet in the air. In the grounds of this old place, which has now been in the hands of professional gardeners for over a century, are many other magnificent specimen trees, particularly a row of native Cedars (*Juniperus Virginiana*) along the top of the old-fashioned terraced garden, of gigantic size, and covered with Ivy from bottom to top. Here is also, perhaps, the oldest green-house now standing in America. It is an orangery, built in the old style, with perpendicular glass on the south side and east end, and heavy stone walls on the other sides. The roof is shingled, and the ceiling overhead is lathed and plastered. This house was built about the same time as the old mansion (1784), and still shelters as fine a collection of the Citrus family as exists in this country,

with individual trees said to have been among its first inhabitants.

In the grounds at "Clifton Park," Baltimore, the property of Johns Hopkins University, are a number of large specimens of *Magnolia conspicua*, probably as large as any of this variety in the country. It is greatly to be feared that the fine trees in this park, of nearly four hundred acres, are doomed, as it is said that the financial needs of the university require that it be divided into city blocks and sold. The founder of the university intended this park for its site, but its managers have thought it better to buy and tear down brick blocks in the heart of the city on which to locate its buildings, and now will sell their useless but extremely valuable park, and sacrifice its wealth of trees.

Crozet, Va. *W. F. Massey.*

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To the Editor of GARDEN AND FOREST:

Sir.—Here is an old sun-dial motto which seems to me prettier than any of those you recently quoted, and which I do not find in Mrs. Gatty's book. I have, however, only the first edition:

"I am a Shade:
A Shadowe, too, art thou:
I marke the Time:
Saye, Gossip, dost thou so?"

New Haven, Conn. *F. L. M.*

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## The United States Nurseries.

To the Editor of GARDEN AND FOREST:

Sir.—Some ten miles inland from Newark, New Jersey, where the Watchung Mountain range falls away sufficiently to allow a railroad to pass over it to the west, lies the town of Short Hills. It is a high and breezy situation, and the town is practically a spacious park, with villas scatterred among the trees. Here for some years has been the home of Mr. James R. Pitcher, and his place has become famous for its interesting collection of plants, and particularly of Orchids. Not long since Mr. Pitcher determined to make his private collection the nucleus of a commercial nursery, and in this business venture he associated with him ten months ago Mr. W. A. Manda, who was at that time head gardener of the Botanic Garden in Cambridge. Unlike the other establishments which I have recently visited, the United States Nurseries have no history. They did not grow up from small beginnings, but started fully equipped for operations on a grand scale. Here are twenty-one green-houses, constructed in the most substantial manner, and stocked with Orchids, Palms, Ferns, Dracænas, Amaryllises and other ornamental plants, while seven acres of ground are entirely occupied with the best of hardy herbaceous plants. The first catalogue of the firm was devoted exclusively to Cypripediums, and it not only attracted attention for the beauty of its mechanical execution, but for the remarkable richness of the collection it offered. The catalogues of special classes of plants which have followed have been equally sumptuous, and the variety and completeness of the lists offered prove that the entire field, which the house proposes to occupy, has been carefully studied and provided for.

In a letter like this only general impressions can be given, for a detailed description of the noteworthy plants in any one of the houses would more than consume the space allotted to me. But a house full of Anthuriums makes a dazzling display, even when no close inspection is made of the nice shades of distinction among the twenty-five varieties that are in flower. In the Cool-Orchid house, too, where 3,000 Masdevallias are showing every tint of color, from vermilion to crimson and purple, the eye finds delight in the combined effect of the mass, even before time is taken to study the particular charms of individuals which represent seventy-five species and varieties. On the opposite stage of the same house are 6,000 plants of *Odontoglossum Alexandræ*, not all in bloom, but many of them white with flowers, and every one thrifty and promising. It would be difficult to find elsewhere as many Cypripediums in one collection. The list includes something like 400 species and varieties, while the number of individual plants approaches 20,000. Among them are many forms of the stately *C. Lawrenceanum*; a plant of *C. superbiens*, carrying eleven flowers, and admirable specimens of *C. Schræderæ*, *C. grande* and *C. bellatulum*. Among other Orchids of conspicuous excellence in bloom I noted a variety of *Lælia purpurata*, with petals and sepals of deep rose, while the lip shows the intense purple of the species, and near it was a striking variety of *Oncidium crispum*, with flowers of an indescribable copper color.

Immense cases of imported Orchids are constantly arriving, but Mr. Manda is ambitious to originate some Cypripediums of his own, and the process of raising hybrid seedlings is interesting to amateurs. After the pollen has been transferred from the anther of one flower to the stigmatic surface of another flower of a different species, from six to twelve months elapse before the seed is ripe. The seed is fine as dust, and Mr. Manda sows it on the pots and among the moss where his plants are growing, so that it has the same temperature and moisture which the plants enjoy. The seeds do not begin to germinate until from four to six months after they are sown, and then the grower must wait patiently from four to twelve years for his plant to bloom. The species with thick leaves, as a rule, are longer coming into flower than others. Faith and hope are plainly virtues essential in one who would raise seedling Orchids.

Passing through a large Palm-house, where the most interesting specimen to me was a great *Encephalartos* (*Zamia*) *pungens*, we came at last to a house set full of Chrysanthemums, and chiefly of the famous Mrs. Hardy. Messrs. Pitcher & Manda paid a larger sum for this plant than was ever given before in this country for a similar plant of this class. But no other plant of the year has attracted so much attention or has been talked about so much since its figure appeared in the first number of GARDEN AND FOREST. Without doubt the enterprising purchasers have received already much more money than they paid for the plant, and even if they had not done so the Mrs. Hardy would have proved exactly the kind of advertisement which the new firm needed. The plants here look strong and vigorous, and seem to indicate that strength of constitution which was always claimed for this variety. Chrysanthemums, by the way, are one of the specialties of these nurseries, and all the more promising new kinds, including select importations from Japan, are here on trial.

Among the hardy herbaceous perennials I observed a large block of Pæonias. Mr. Manda finds that there is a growing demand for these plants, and he is gathering as rich a collection as possible. Tree-Pæonies, too, receive much attention, as do the Poppies, Phloxes, Primulas, Single Dahlias and Alpine plants. Hardy Orchids form another feature of special interest, and one must go far to find a better collection of native species. These native Orchids and other American plants, and with them certain Mexican and Japanese plants are now sent to Europe from these nurseries in very considerable quantities.

As was said at the beginning of this letter, these nurseries have their history yet to make; there are few places in the country, however, which can show collections of plants better worth visiting, and the very fact that such an establishment has been created within a few months is a striking illustration of the faith of forward-looking men that the gardens of the country will absorb an almost unlimited supply of the best material. Ten years ago an enterprise of this magnitude would have been looked upon as a venture of the wildest character. *S.*

Short Hills, N. J., June 15th.

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## Recent Plant Portraits.

*Botanical Magazine*, May.

LICUALA VEITCHII, *t.* 7053; a handsome dwarf Palm (the *Pritchardia grandis* of Veitch's Catalogue), a native of Sarawak, in Borneo.

SMILAX OFFICINALIS, *t.* 7054; the plant which supplies the true Sarsaparilla of the British Pharmacopæia.

PENTSTEMON ROTUNDIFOLIUS, *t.* 7055; a shrubby Mexican species discovered by Mr. Pringle and figured in GARDEN AND FOREST, i., f. 73.

SAXIFRAGA LATEPETIOLATA, *t.* 7056; a rare biennial species, being known to grow only on a single Spanish mountain, the Sierra Sta. Maria, one of the Cerro de Chiva, in Valentia; and remarkable owing to the great breadth of the petioles.

LAPORTEA MOROIDES, *t.* 7057; one of the "virulently stinging Nettles that infest the humid forests of eastern tropical and sub-tropical Australia"—a shrub or small tree clothed with very fine virulently stinging hairs.

PHILLYREA VILMORINIANA, *Revue Horticole*, May 1st; a fruiting branch of this well-known broad-leaved evergreen shrub of the Orient.

AMPELOVITIS DAVIDII, *Revue Horticole*, May 1st; this, the *Vitis Romaneti* of some authors, is an interesting hardy plant from the north of China, of very considerable ornamental value.

HIPPEASTRUM RETICULATUM, *Gartenflora*, May 1st.

## Notes.

The Legislature of California, at its last session, amended the state revenue laws so as to exempt fruit-trees and Grape-vines from taxation.

*Syringa Pekinensis*, Rupr., is in flower this year in the Arnold Arboretum. This is probably the first time that this plant has flowered in cultivation. A photograph of a panicle of flowers has been made, and will be reproduced in the pages of this journal.

On Friday last 2,200 plants of *Cycas revoluta* were sold at auction by Messrs. Young & Elliott, of this city. This was the largest importation of these plants ever disposed of here at a single sale. They varied from six to eighteen inches high and from twelve to sixteen inches in circumference, and were in excellent condition.

The collection of Orchids belonging to Mr. J. Wallace, of Paterson, New Jersey, was sold on Tuesday last at the auction-rooms of Messrs. Young & Elliott. The lot consisted of 1,700 established plants, and the prices realized were good. A strong plant of the beautiful hybrid *Cattleya Exoniensis* brought the highest price, which was seventy dollars.

The plant most commonly used in Japan for the making of lawns is said by a German horticultural paper to be the Shiba Grass (*Arundinella anomala*). It is an evergreen which grows to but four or five inches in height and requires to be cut only twice in the year. It must be propagated by division, as it rarely bears good seed, and plants grown from the seed do not, it is said, have the soft gray-green color which is so highly prized by the Japanese.

The retail florists of Brooklyn have been lately offering for sale fine plants of Pompone Dahlias, about eighteen inches high and full of flowers. They are in four-inch pots, and sell for twenty-five cents each. Dahlias of such size are unusual in this market in early June, and a little investigation brings out the fact that most, if not all, of the plants come from the establishment of Kritchsmar Brothers, Flatbush, Long Island. This firm raised some 10,000 plants, 1,000 of which were sold to the Brooklyn Jockey Club for decorating their grounds. A large proportion of the Dahlias are of the old white variety, known as Camelliæflora, but there are also colored Pompone varieties which seem equally well-grown. The same growers every year plant a house full of the white Dahlia, mentioned above, for winter flowers.

It is proposed, in connection with the International Exposition of Geographical, Commercial and Industrial Botany, which will be held in Antwerp next year, to celebrate the third centennial of the invention of the microscope. An historical exhibit will be arranged, and another of the different forms of the microscope, as at present perfected; and these exhibits will be illustrated by a series of descriptive lectures, which can hardly fail to be interesting and instructive. The compound microscope was invented by two brothers, Hans and Zacharia Janssen, of Middelburg, in 1590. It was little employed, however, until the end of the first quarter of the present century, when the great improvements invented by Charles Chevallier led to its general use by men of science and made possible the discoveries to which the human race owes so much.

The play-ground in Franklin Park, Boston, a broad and beautiful meadow, one of the purest and simplest of Mr. Olmsted's creations, was formally dedicated to the public use on Wednesday of last week, in the presence of the Governor of the Commonwealth, the Mayor of Boston, 8,000 pupils of the public shools, and a vast concourse of spectators, before whom the School Regiment, made up of battalions from the High Schools of the city, paraded. The school children joined in singing "The Star Spangled Banner" when the flag was displayed from the tall staff in the middle of the meadow, and the people of Boston realized for the first time what it is to have a park. A few passing clouds and some drops of rain served to temper the heat of the day, and neither interfered with the success nor detracted from the beauty of one of the most picturesque and important events in the recent history of the New England metropolis.

Everyone knows that the stork is almost superstitiously beloved by the peasants of northern Germany and the Low Countries, and that iron supports upon which he may build his nest are set on cottage-gables in the belief that where a stork has his brood fire will never come. Nevertheless, travelers are often surprised when they see how tame the great birds become, following the agriculturalist through field and furrow, and often sleeping on one tall red leg close to where he is at work and within sound of the rumble of the passing railroad train. So fond is the Dutchman of having storks about him, indeed, that he makes provision for its nests even in the centre of his bulb-fields. Here one may often see slender poles some twenty or thirty feet in height, supported by braces and bearing at the top a small round platform similarly strengthened. On these the storks build their nests, and here they perch, like sentinels protecting the beautiful crops.

The Woman's Division of the German Academic Association recently decided to promote the education of women in the art of gardening, "partly in order to enable the future housewife to care for her own garden, but chiefly to open new sources of income to the unmarried." A committee of the Association for the Promotion of Horticulture at once concerned itself with the matter, and announced that it would be considered at a general meeting on May 23d. Meanwhile, however, the subject was broached at an open horticultural conference in Berlin on the 8th of May, where 600 gardeners were present. An hour and a half was spent in discussing the advisability of educating women as gardeners, thirty speakers making themselves heard for or against the idea. A vote was then taken, and the following resolution submitted to the ladies' committee of the Academic Association: "The conference feels itself compelled to oppose the projects of the Academic Association in the interest of German gardening, as well as in those of womankind itself, because gardening demands much greater physical powers than usually are found in women, and because the industry is already at this moment suffering from overcrowding."

A writer in the *Garden* speaking of the American White Pine by the name most commonly employed in England, says: "When we consider how valuable a timber-producing tree the Weymouth Pine is, how rapid of growth, how easy of culture, and, withal, how distinct and beautiful, the wonder is that it is not more extensively cultivated on this side of the Atlantic. It is becoming a rare tree in its native wilds, the demand for its beautifully-grained and easily-worked wood being far in excess of the supply." It is true that our supply of White Pine for commercial purposes has been greatly reduced, partly by legitimate use, but still more largely by wasteful methods of cutting and destructive forest fires. But it is a great exaggeration to say that *Pinus Strobus* is becoming a "rare tree" in this country. Fine specimens of noble height, such as were easy to obtain a generation ago, are indeed rare to-day; but any one who has seen the way in which young White Pines spring up on deserted pastures and fields in New England can hardly fear that it is in danger of perishing from the land. It still gives a distinctive character to many broad districts of New England, but, all the same, the counsels which the English writer offers his countrymen with regard to the advisability of cultivating this tree, are even more insistently needed in this country. White Pines will grow whether we plant them or not; but it would be greatly to our advantage did we plant them more generally and systematically in regions where they once flourished in such stately forests.

More than one correspondent of a certain English horticultural journal has spoken with approval of the idea of growing Roses and Asparagus together, as conducing to a fine display of the beauty of the Roses, while not incompatible with good economical results as regards the Asparagus. "The two plants match," says one, "on the principle of strong contrast," and he exclaims with rapture over the effect when one comes upon "a glorious Rose-bed in the flower-garden overflowing with beauty and verdure, each drooping Rose resting its beauteous cheek on the soft, feathery fronds of bending Asparagus foliage." To many readers this will seem a singular perversion of taste. Not the principle of strong contrast, but the principle of harmony, is that which guides the man of true taste in arranging his growing plants or his cut flowers; and when a plant has such beautiful foliage as a Rose-tree, it seems perversity indeed to seek to enhance its effect by an intermixture of green of a totally different character. The massive loveliness of a double Rose is surely seen to better advantage resting its cheek on its own leaves or drooping in isolated perfection than swathed in the fluff of Asparagus shoots. In ancient times Plutarch wrote that there was no better way to show off the beauty of Roses than to plant them among Cabbages. But such a mixture of alien forms is generally condemned to-day, while we have so long been accustomed to separating useful from ornamental plants in our gardens, that the mere fact of a utilitarian crop being grown in a Rose-bed would give a slight shock to the feelings, even though the effect might be better to the eye than the one which these English horticulturists admire.